OUACHITA RIVER BRIDGE
SPANNING THE OUACHITA RIVER
Sterlington
Ouachita Parish
Louisiana

HAER No. LA-20

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
SOUTHEAST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
100 Alabama Street, SW
Atlanta, Georgia 30303

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Location:	Louisiana Highway 2, spanning the Ouachita River Sterlington , Ouachita and Union Parishes, Louisiana The bridge is located at latitude: 32.696169, longitude: -92.086885. The coordinate was obtained from Google Earth on 14 September 2011. The location has no restriction on its release to the public.
Date of Construction:	Construction Span: (Late 1931 through mid 1932). Completed in 1932.
Engineer:	J.B. Carter employed with Nashville Bridge Company of Nashville, Tennessee and Bessemer, Alabama.
Builder:	Nashville Bridge Company
Present Owner:	State of Louisiana
Present Use:	Vehicular Bridge
Significance:	The Ouachita River Bridge at Sterlington was one of eight bridges to be built as part of the highway improvement plan of Governor Huey P. Long in 1928. In 1929, the Louisiana Highway Commission began preliminary plans for eight highway toll bridges. One of them was to be built at Sterlington to cross the Ouachita River. After problems with the way the bond issue was drawn, Governor Long negotiated a plan with the Nashville Bridge Company to build the eight bridges as a package deal for six million dollars.
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Date:	March 22, 2010

HISTORICAL BACKGROUND

History of the Sterlington Community

Historians credit the founding of Sterlington by two Tennessee brothers, John T. Sterling and Robert James Sterling. John T. Sterling, born on September 14, 1800 and his brother Robert, a lawyer, came to Louisiana and settled in the northwestern part of Ouachita Parish during the 1820s. John T. Sterling later married the widow of Robert James Knox, Elizabeth Ann Liles (Hook) Knox who had inherited large tracts of land in the present day Ward One of Ouachita Parish and other land in Morehouse Parish. So when John T. Sterling married Elizabeth Knox, he came into a great deal of property and money (Short, 1965). After this union, John T. Sterling established one of the largest operating plantations in north Louisiana at the confluence of the Ouachita River and Bayou Bartholomew (Louisiana Proud, Vol. IV).

Although there is no official documentation as to how the community at the edge of Ouachita and Union Parishes received its name, historical legend has it that the community was originally named after John T. Sterling as Sterling, Louisiana. When a post office was established in later years, there already existed a post office in the community of Sterling, Louisiana in Franklin Parish. It is believed that the suffix of "ton" was added at that time to differentiate between the two communities bearing the same name. Sterling, Louisiana in Ouachita Parish became Sterlington, Louisiana. Sterlington was incorporated on August 15, 1961 by the order of Governor Jimmie H. Davis.

Part of John T. Sterling's plantation was located on ancient Indian burial grounds and in 1908 human remains; glass beads, beautifully designed pottery and brass ornaments were discovered on the property. Agriculture would remain as the main economy in the area until a large reserve of natural gas known as the "Monroe Field" was discovered (News Star World, May 3, 1891) and piped from the area to points across the nation (Louisiana Proud, Vol. IV).

Early Bridge History

During the early part of the twentieth century, Louisiana, outside of the city of New Orleans, was an accumulation of many rural villages, hamlets, towns and small cities hampered by transportation woes. The majority of roads were unpaved, leaving citizens trapped in muddy sinkholes as they attempted to travel from place to place. Louisiana's natural waterways, once the economic source of efficient and easy travel throughout the state became major obstacles with the introduction of the automobile. As the automobile expanded its influence and roads were constructed, distances between points of call were shortened thus promoting economic growth. Many of the early roads were required to cross countless bayous, streams and rivers. Early on, local ferries were used to cross many of these waterways. Some were operated by the State of Louisiana and private individuals operated others. Few of the major rivers like the Ouachita River had functional vehicular bridges. That was the case at Sterlington. Prior to 1932, crossing the Ouachita River on Louisiana Highway 2 between Ouachita Parish and Union

Parish required a ferry crossing at Sterlington. As a result economic development westward toward Shreveport and eastward toward Monroe and to larger population centers north and south was severely hampered. This would soon change during the political reign of one of Louisiana's most colorful and controversial politicians.

Prior to becoming governor, Huey P. Long served as a member of the Railroad Commission from 1918 to 1928 and from 1924 through 1928 he served as its chairman. Coming from the rural community of Winnfield, Louisiana and having traveled the state during his early political campaigns, Huey Long gained a keen understanding of the transportation problems in the state during this period. He saw firsthand how the state's economy was being constricted by the lack of good roads and bridges. While campaigning for governor in 1927, Huey Long decried the poor conditions of Louisiana's roads, highways and bridges and made a pledge, if elected governor, that he would make highway improvements one of the major programs of his administration. When he was elected in 1928, one of the first legislative acts he pushed through a willing legislature was a highway bond amendment designed to bring Louisiana out of the transportation doldrums and spur economic growth (Williams, 1969 and Biographical Directory of the United States Congress, Date Unknown).

In 1929, the Louisiana Highway Commission, chaired by O.K. Allen, began preliminary plans for a series of eight highway toll bridges to be funded by bond issues. The eight bridges were to be constructed at various locations in the state at Monroe, Coushatta, Morgan City, Sterlington, Harrisonburg, Melville, Moncla, and Jonesville. By July of 1929, the engineering department of the Louisiana State Highway Commission received orders from the governor to prepare cost estimates for the construction of the eight bridges as a package deal (ESI, 1996).

The estimates developed by the Louisiana Highway Commission for the eight bridges totaled over seven million dollars. Unfortunately, the legitimacy of the 1928 bond amendment was in question and the funding became uncertain. As a result, the commission was forced to use its own funds from the current year revenue to pay for the construction of the bridges. Early on, because of limited resources, the state could only manage to build swing-span bridges at Chef Menteur and the Rigolets in the New Orleans area (ESI, 1996). The best that could be done for the other ferry sites, including Sterlington, was to pay the private operators a monthly fee so the tolls could be eliminated (Williams, 1969: 441-442). This served Governor Longs political agenda for the time being until he could figure out a way to get the bridges built.

Frustrated by the laps of time in delivering his promises to the citizens of the areas ear-marked to receive new bridges, Governor Long developed a strategy to build the eight new concrete and steel bridges by bypassing the Highway Commission completely. He negotiated a plan with the Nashville Bridge Company of Nashville, Tennessee and Bessemer, Alabama to build eight bridges as a package deal for six million dollars. Governor Longs' plan, a controversial one from the beginning, called for the eight bridges to be built as toll bridges for as long as the construction cost was unpaid. Upon payment from tolls collected, the tolls would be removed. The Governor's maneuver was controversial from the start. Toll bridges were not going to be well received by the public and the deal would place the state in an unfavorable position to receive any possible federal funding (ESI, 1996 & Williams, 1969: 442-444).

Governor Long, however, would not be held back. In true Huey P. Long fashion, construction drawings were ordered by him and developed by the Nashville Bridge Company under his privately negotiated scheme. Moving ahead undaunted, the standard plans for the eight bridges, that included fixed and swing span steel through trusses, were designed and guided by one of the bridge company's chief engineers, J.B. Carter. The eight-bridge design package was presented to the Louisiana Highway Commission, chaired by Longs' political ally, O.K. Allen, in February of 1931 and officially approved. The bridge engineer of the Louisiana Highway Commission was Norman E. Lant, and the bridge construction engineer was Philip E. Angier. Eventually the bridges were built under a Federal Aids Project (Cusick, 1995; ESI, 1996; and Williams, 1969).

Bridge Design and Construction

The official name of the bridge was the Ouachita River Bridge at Sterlington, Farmerville – Bastrop Highway, Ouachita and Union Parishes. The title sheet of the engineering construction drawings dated March 23, 1932 list the bridge as "State Bridge over Ouachita River at Sterlington, LA, Ouachita – Union Parishes, State Project No. 6500" (Photograph number HAER LA-20-26). This type of movable bridge structure was common during the mid-to-late-nineteenth century and the early twentieth century (Photograph numbers HAER LA-20-25). The bridge spans are generally considered a series of "Parker" type trusses. The "Parker" type truss was developed from the more common box type Pratt Truss by the use of a polygonal top chord. The arched top chord made the bridge stronger than a regular Pratt Truss while using the same amount of material (Coco, 1996).

The general bridge design consists of three components (Photograph numbers HAER LA-20-27). The first component is the substructure composed of seven concrete piers including a circular swing-span pivot pier and six modified rectangular piers. The second component is the bridge superstructure that consists of one through truss fixed span, three open truss fixed spans, one swing-span and a concrete girder approach on the east end for a total length of approximately 925 feet. The third component, consisting of a large wooden fender stretching north and south in the river, protected the pivot pier of the swing-span from impact of river vessels.

In 1996 there were 10 examples of high swing, swing-span bridges in Louisiana. Eight of them were built in the 1930's during the administrations of Governors Huey P. Long and O.K. Allen (Photograph numbers HAER LA-20-12). Today, there are diminishing examples of this type of high swing-span bridge remaining in Louisiana. Many of these outdated bridge types, having served their usefulness, have been replaced with new modern structural concrete bridges.

Bridge Substructure

Pier No. One

Pier No. One is a modified rectangular pier with rounded reinforced concrete pier columns on each end separated and connected by a flat rectangular reinforced concrete filler component. The upper circular components on each end are 4'-0" in diameter and the lower circular components on each end are 5'-0" in diameter. The pier rest on a 10' x 30'-2" long pilling bed consisting of thirty-three timber piles each 40'-0" long. The pier is divided vertically into two sections. Each section is 18'-3" tall. The top section is 27'-8" wide and the bottom section is 28'-8" wide. The pier is made up with over 3,672 linear feet of ½" and 2,402 linear feet of 1" steel reinforcing rods weighing 11,330 pounds. 137 cubic yards of Class "A" concrete make up the body of the concrete pier (Photograph numbers HAER LA-20-28 and 13).

Pier No. Two

Pier No. Two is a modified rectangular pier with rounded reinforced concrete pier columns on each end separated and connected by a flat rectangular reinforced concrete filler component. The upper circular components on each end are 5'-0" in diameter and the lower circular components on each end are 6'-0" in diameter. The pier rest on a 10' x 32'-8" long pilling bed consisting of fifty-two timber piles each 40'-0" long. The pier is divided vertically into two sections. The lower section is 16'-9" tall and the upper section is 20'-2 ½" tall. The top section is 28'-0" wide and the bottom section is 29'-0" wide. The pier is made up of ½" and 1" steel reinforcing rods weighing 16,316 pounds. Almost 212 cubic yards of Class "A" concrete make up the body of the concrete pier (Photograph numbers HAER No. LA-20-29).

Pier No's. Three and Five

Pier No's. Three and Five are identical in size, shape and quantities. They are modified rectangular piers with rounded reinforced concrete pier columns on each end separated and connected by a flat rectangular reinforced concrete filler component. The upper circular components on each end are 6'-6" in diameter and the lower circular components on each end are 7'-6" in diameter. The piers rest on a 12'-6" wide by 35'-2" long pilling bed consisting of fifty-two timber piles each 45'-0" long. The piers are divided vertically into two sections. The lower section is 31'-0" tall and the upper section is 20'-0" tall. The top section is 30'-2" wide and the bottom section is 31'-2" wide. The piers are made up of ½" and 1" steel reinforcing rods weighing 18,683 pounds. Over 300 cubic yards of Class "A" concrete was used in the "above seal" portion of the piers and over 147 cubic yards of Class "A" concrete were used in the "in seal" portion of the piers (Photograph numbers HAER LA-20-30 and 3).

Pier No. Four (Swing-Span Pivot Pier)

Pier No. Four is basically a 25'-0" diameter circular pier composed of eight reinforced concrete cells, a solid concrete base approximately 28'-0" in diameter and a solid reinforced concrete cap approximately 29'-0" in diameter that supports the turning mechanisms for the swing-span. It sits on a 29-foot circular pilling bed consisting of ninety-two timber piles each 45'-0" long. The pier is 58'-0" tall from the base of the pile bed. The pier is made up of 26,929 pounds of ½" and 1" reinforcing steel rods and consists of over 575 cubic yards of Class "A" concrete. The pier "in seal" course is made up of over 218 cubic yards of concrete (Photograph numbers HAER LA-20-31, 1 and 15).

Pier No. Six

Pier No. Six is a modified rectangular pier with rounded reinforced concrete pier columns on each end separated and connected by a flat rectangular reinforced concrete filler component. The upper circular components on each end are 4'-0" in diameter and the lower circular components on each end are 5'-0" in diameter. The pier rest on a 9' x 36'-8" long pilling bed consisting of thirty-three timber piles each 40'-0" long. The pier is divided vertically into two sections. The lower section is 12'-9" tall and the upper section is 21'-9" tall. The top section is 27'-8" wide and the bottom section is 28'-8" wide. The pier is made up of ½" and 1" steel reinforcing rods weighing 12,155 pounds. Almost 152 cubic yards of Class "A" concrete make up the body of the concrete pier (Photograph numbers HAER LA-20-32 and 2).

Pier No. Seven

Pier No. Seven is an open modified rectangular pier with circular reinforced concrete pier columns on each end capped by a wide reinforced concrete cap that ties the two circular concrete columns together. The circular columns are 4'-0" in diameter and rise from the pier base a distance of 13'-0". The total height of the pier from the pile bed is over 25'-0". The pier rests on a pile foundation supported by two groups of five rectangular concrete piles under each circular reinforced column. Each pile is 40'-0" long. 6,380 pounds of ½" and 1" reinforcing steel make up the skeleton of the pier and almost 58 cubic yards of Class "A" concrete make up the body of the pier (Photograph numbers HAER LA-20-33).

Bridge Superstructure

100-foot Fixed "Parker" Open Truss Span

The superstructure includes three 100-foot fixed "Parker" type open truss spans. The original design was listed as the standard B-2-296 plan. Two such spans make up the approach from Union Parish on the West bank of the Ouachita River and one makes up part of the approach from Ouachita Parish on the East bank of the Ouachita River. The spans have only a floor system and two vertical side trusses made up of riveted vertical and lateral steel sections with a sloped top chord. Components of the trusses are sections made up of a combination of channels, angles and plates riveted together to form single components. Some members are made using angles and plates that are then tied together with riveted lacing bars. Where truss components intersect they are held together by riveted gusset plate connections. The truss floor system supports an 8" concrete roadbed with 10" curbs. The total centerline width of the truss is 22'-8". Estimated quantities for the span include 102,600 pounds of structural steel, over 56 cubic yards of Class "A-A" concrete, and 3,500 pounds of reinforcing steel (Photograph numbers HAER LA-20-37, 6, 7, 8 and 14).

200-foot Fixed "Parker" Through Truss Span

The superstructure also includes one 200-foot fixed "Parker" type through truss span. The original design was listed as the standard B-2-184 plan. This through truss spans between pier no.'s 2 and 3. The span has a trussed floor system, two vertical side trusses, and a roof truss system made up of riveted vertical and lateral steel sections with an arched top chord. Components of the trusses are sections made up of a combination of channels, angles and plates riveted together to form single components. Some members are made using angles and plates that are then tied together with riveted lacing bars (Photograph numbers HAER LA-20-17). Where truss components intersect they are held together by riveted gusset plate connections. The truss floor system supports an 8" concrete roadbed with 10" curbs. The total centerline width or the truss is 22'-8". Estimated quantities for the span include 279,400 pounds of structural steel, over 111 cubic yards of Class "A-A" concrete, and 17,180 pounds of reinforcing steel (Photograph numbers HAER LA-20-38, 3, 11, 12 and 16).

320-foot Swing-Span "Parker" Through Truss

The swing-span is a 320-foot "Parker" type through truss system pivoted from a central circular concrete pier No. 4. The swing-span was built to the standard plan B-2-227, designed by the Nashville Bridge Company. The center-bearing swing-span is mechanically gear-driven, without hydraulics, and has electric motors (Photograph numbers HAER LA-20-23 and 24). The Pivot member of the swing-span is a 27" diameter bronze disk resting on a steel disk. Eight balance wheels rest on an outer ring surrounding the center-bearing housing and are used to stabilize the span during operation (Photograph number HAER LA-20-34). Components of the trusses are sections made up of a combination of channels, angles and plates riveted together to form single components. Some members are made using angles and plates that are then tied together with riveted lacing bars. Where truss components intersect they are held together by riveted gusset plate connections (Photograph number HAER LA-20-17). Unlike the swing-span bridges at Harrisonburg and Jonesville, the Sterlington swing-span has a more complicated subdivision of the truss system (Photograph number HAER LA-20-18). The Sterlington bridge swing-span has extra vertical and diagonal truss members in the center two panels (Photograph numbers HAER LA-20-39, 4, 5, 9 and 10).

At each end of the swing-span, there are wedges that are mechanically retracted when the bridge is swung opened. The wedge operation machinery was designed to produce a force of 60,000 pounds uplift at each wedge (Photograph number HAER LA-20-39). When in the stationary position the top arched chord was designed to act in compression and the bottom chord was designed to act in tension. When the span was opened, the reversed reaction took place. The top arched chord acted in tension as it cantilevered from the pivot pier and the bottom chord acted in compression.

Originally, the floor of the swing-span consisted of steel stringers resting on steel I-beams. Above the steel stringers there was a layer of 6" x 8" creosote timber nailers upon which 6" x 12" tongue and grooved creosote planks were placed. 9" galvanized spikes held the planks together. Each plank had spikes along each edge that were driven into the creosote timber nailers below. The final finished floor consisted of 1 ½" asphalt lumber laid in a herringbone pattern at ninety degrees from the center line of the roadway and attached to the creosote plank deck below (Photograph number HAER LA-20-34). Today, the swing-span floor has been replaced with a steel open traffic grate (Photograph number HAER LA-20-15).

The Operators House for the swing-span is located above the center portion of the swing-span through truss directly above the pivot pier. The structure is a symmetrically square building measuring 16'-0" square with three double hung wood windows on each side (Photograph number HAER LA-20-19). One side has two windows and a wood door. The building is approximately 8'-0" tall and has a flat roof. The original specifications for the structure call for the framing to be of "heart cypress" except for the window frames that were to be made of grade "B" cypress. Exterior walls were to be covered with 9" beveled cypress siding and interior walls were to be clad in 3 ¼" beaded tongue and grooved heart pine boards. The roof of the structure was sheathed with 7/8" wood planks, topped with one layer of 30-pound asphalt felt. The finished roof was to be a 3-ply built-up roof with gravel toping. Copper flashing was to be used around the perimeter of the roof edge and over windows and doors (Photograph number HAER LA-20-40).

The specifications also called for the use of 4" terracotta tile on the floors. In addition, the plans called for a "vitreous china" wall hung urinal to be connected to the 4" drain from the roof. The specifications also call for gas piping to be supplied, probably for connecting some heating device. The entire structure was to be painted with three coats of paint as required by the Louisiana Highway Commission specifications (Photograph number HAER LA-20-40).

90-foot Reinforced Concrete Girder Span

The final span of the bridge consists of a ninety foot reinforced concrete girder approach on the east bank of the Ouachita River that consists of three, thirty foot reinforced concrete girder spans resting on precast concrete piles with horizontal concrete pile caps. This design was referred to as the Standard Plan B-2-291. Each end of the bridge approaches was fitted with two model N-N7 Norwood Noonan electric crossing gates (Photograph numbers HAER LA-20-41, 6 and 13).

Protection Fender

The original swing-span protection fender was a 363-foot long structure placed at ninety degrees north and south in the Ouachita River to the main bridge structure at the pivot pier no. 4. The purpose of the protection fender was to protect the swing-span pivot pier from being hit by vessels moving through and under the bridge. The creosote timber pile and timber structure rose

35'-0" above the low water mark of elevation 44A. 16,170 linear feet of 15" creosote piles were used to build the structure of the fender. An additional 141,318 board feet of creosote timber was used as spacers, sheathing and bracing. In addition, three pile clusters were placed on the up river end, each constructed with seven creosote piles 70'-0" long and strapped together with 18 turns of ½-inch steel cable lashing. Four pile clusters were constructed around pier no's. 3 and 5, each made of seven creosote piles 70'-0" long and strapped together with eighteen turns of ½" steel cable lashing. Each pile and pile cluster was covered with number 24 gage-galvanized sheet metal to protect the top of the pile (Photograph numbers HAER LA-20-25, 35, and 36).

Bridge Changes

Remarkably, the Ouachita River Bridge and its approaches at Sterlington have changed very little over the last seventy-seven years. Aside from some periodic minor maintenance performed on the bridge spans there have been few modifications of any consequence. One of the major changes over the years has been the removal of the wooden timber floor and timber plank roadway from the 320-foot swing-span section. It has been replaced with an open steel traffic grate (Photograph number HAER LA-20-1).

Most noticeably, is the absence of the enormous pile and timber fender on each side of the Pivot Pier No. 4 of the swing-span. What remains today is a cluster of part of the pile timber fender structure ends. Each cluster is approximately 200'-0" from the pivot pier on each side. New cluster piles have been placed strategically in the river where the original pile and timber fender was once located (Photograph numbers HAER LA -20- 3, 5 and 10).

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